National Ocean Service Visions for FY 2000

Over the past several months, the NOS Senior Management Council has been working with the NOS Planning team to identify and describe issues that "drive" NOS activities. The short-term objective has been to develop specific initiatives to pursue in the NOAA FY 2000 planning process. The long-term objective is to establish an issue-based foundation for focusing our unique capabilities in order to help resolve coastal problems while maintaining the economic viability of coastal areas. The Council and the Planning team will continue to work on these issues over the next several months to better position the organization as a leader in coastal stewardship. A brief description of each initiative follows.

Protect, Conserve, & Restore Habitat

Overview

Human activities, including coastal population growth, development, and changes in land use, have degraded coastal, marine, and Great Lakes waters and destroyed or fragmented key habitats through sediment loading, atmospheric deposition of contaminants, and the loss of wetlands, substrate, riparian areas and stream channel complexity. Furthermore, human-induced impacts to the coastal environment are manifested as poor water quality, an increasing frequency and extent of harmful algal blooms and outbreaks of Pfiesteria, increasing incidents of eutrophication, and a decline in biotic species and biodiversity.

Habitat protection and restoration is central to the NOS mission of coastal stewardship. This initiative focuses on addressing the continued degradation of coastal habitats through the integration of scientific, technical, and management capabilities residing within numerous NOS Program Offices. In addition, habitat protection is proposed to be part of a NOAA-wide initiative to complement the work of other Federal agencies. Further, as the Committee on Environment and Natural Resources (CENR) develops an Interagency Ecosystems / Habitat Initiative, this cross-NOAA habitat focus will become the centerpiece for the coastal and marine portion of the broader initiative.

Why NOS?

NOS has the scientific, technical, and management capabilities in research, monitoring, assessment, mapping, prediction, training, capacity building, response, conservation, protection and restoration to make significant progress in addressing these problems over the next five years. NOS programs address activities from the heads of watersheds through the Exclusive Economic Zone, and has established unique partnerships with states and local communities to address human induced threats to the productivity of coastal and marine habitats. Together, NOS, the National Marine Fisheries Service (NMFS), the Office of Oceanic and Atmospheric Research (OAR), and the National Environmental Satellite and Data Information Service (NESDIS) have the end-to-end capabilities to monitor, assess, protect, conserve, and restore coastal and marine habitat.

An Approach

The NOS approach is two fold: (1) NOS will improve the Nation's understanding and awareness of coastal habitats and the threats to them; and (2) NOS will aggressively protect, enhance, and restore coastal habitat, resulting in measurable gains in the quantity, quality, and functionality of our Nation's coastal and marine habitats. Specifically, efforts conducted under this initiative will concentrate on reducing the impact of coastal pollution problems; addressing changes in habitat and biodiversity; decreasing the adverse effects of events, such as eutrophication, harmful algal blooms, and hypoxia.

Benefits/Outcomes

The broad objectives accomplished through this initiative will improve the quality, quantity, and functionality of our Nation's coastal and marine habitat. For example, NOS efforts to prevent habitat degradation can increase the percentage of coastal waters that support essential fish habitat, living marine resource productivity, safe seafood production, and safe recreation. Better tools to monitor, assess, describe, and predict the health and productivity of our coastal habitats can result in better management decisions, more effective prevention strategies, and more cost-effective restoration programs.

Reduce Impacts from Natural Disasters

Overview

U.S. coastlines are at risk from a variety of natural hazards such as hurricane winds and storm surge, tsunamis, and toxic algal blooms. Hazards, and the costs to society associated with these events, are compounded due to other trends, including increases in sea level rise, land subsidence, coastal population growth, and increasingly costly development. The total cost of damages from weather-related disasters alone (in constant dollars) has doubled or tripled each decade over the last 35 years. The reported costs are just a fraction of the actual costs that include damages to natural resources, loss of

landfill capacity, loss of wages and productivity and threats to public health.

To address social and economic risks associated with natural hazards, the Department of Commerce proposed the Natural Disaster Reduction Initiative (NDRI), an inter-bureau effort designed to reduce and mitigate the costs of natural disasters. The NDRI is part of a larger effort developed by the Administration through the National Science and Technology Council's Committee on Environment and Natural Resources (CENR), representing 16 federal agencies. NOAA's NDRI contributions address two critical areas. The first, entitled *Moving out of Harm's Way*, focuses on developing improved warnings and forecasts for protecting people and property from the immediate threat of natural hazards. The second, entitled *Keeping out of Harm's Way*, involves developing mitigation strategies to ensure that people and property are not in the path of natural hazards, or are more resilient to them when they occur.

Why NOS?

NOAA and NOS are critical players in predicting and forecasting natural hazard events, and communicating information to emergency managers and the public. The organization works with federal, state, and industry partners to: 1) identify areas of high hazard risk; 2) develop techniques for mitigating hazard impacts; and 3) improve local and state capabilities to prevent disasters from occurring. NOS has the scientific, technical, and management capabilities, as well as expertise in response and restoration efforts to contribute significantly to this initiative. Through partnerships with federal, state, and local coastal managers, NOS is positioned to provide critical information on how to avoid, minimize, and mitigate the impacts of natural extremes on vulnerable population areas. This work will enhance the capabilities of state and local governments to understand their vulnerabilities, and to develop appropriate strategies.

An Approach

The NOS approach to NDRI involves: 1) improving scientific understanding and information resources concerning coastal hazard risks, impacts, and costs; and 2) strengthening state and local capabilities for reducing hazard impacts directly through operational and programmatic assistance, technology transfer and training.

Benefits/Outcomes

Accomplishing objectives set forth in this initiative will provide a wide range of benefits to the coastal community. Improved mitigation guidance will enhance the abilities of federal, state, and local managers to develop meaningful strategies to reduce the potential impacts of natural hazards. Working with other components of NOAA, NOS can help improve the lead time and accuracy of warnings and forecasts, enabling emergency managers, communities, businesses, and individuals to adequately prepare for and respond to predicted events. In addition, improvements to risk assessments will provide critical information for refining coastal land use practices to decrease potential impacts of natural hazards, and to reduce costs associated with response and restoration efforts.

Mitigate the Impacts of Climate Change

Overview

U.S. coastal areas, containing some of the most valuable and heavily used habitats anywhere in the world, are experiencing increased pressures as a result of rapid population growth and development. Effects of climate change will compound the human-induced stresses that already adversely affect these coastal areas. As a result of human activities and land use changes, coastal habitats, resources, and communities are vulnerable to accelerated sea level rise; alterations of precipitation patterns, storm frequency, and intensity; and increased siltation from erosion and runoff. These factors could result in increased erosion of shoreline and adjacent coastal habitat; increased salinity of estuaries and freshwater aquifers; altered tidal ranges in rivers and bays; changes in sediment and nutrient loading and transport; changes in distributions of chemical and microbiological contaminants in coastal areas; and increased coastal flooding.

Understanding and predicting the consequences of climate change is a priority area for high impact, interdisciplinary, collaborative science. NOS proposes to assess and predict climate change impacts and to develop strategies to help coastal communities adapt to the effects of climate change (e.g., accelerated sea level rise) and to protect coastal resources. Efforts will focus on the following major elements: 1) effects of climate change on physical and biological regimes; 2) water use and management; 3) land use and management; 4) socioeconomic assessments and impacts; and 5) ecosystem health and sustainability of fisheries. The information, tools, and adaptive strategies developed through this initiative will complement the protection, conservation, and restoration of coastal habitats.

Why NOS?

NOS has the scientific and technical capabilities in research, monitoring, and prediction, as well as national and international expertise in integrated coastal management. Thus, NOS can make significant progress over the next five years in assessing the impacts of climate change and developing strategies to adapt to the effects of climate change on coastal communities and on coastal, estuarine, and Great Lakes habitats and resources. NOS also has demonstrated experience in developing adaptive strategies for coastal climate change impacts through its work on the U.N. Intergovernmental Panel on Climate Change (IPCC) Coastal Zone and Small Island Subgroup.

An Approach

The impacts of climate change on coastal communities, coastal resources, and coastal habitats are not

well understood; there is limited capacity to predict these impacts; and in general, management strategies to adapt to climate change in coastal areas have not been implemented. Over the next five years, NOS proposes regional efforts to: (1) improve the understanding and predictability of climate change impacts on coastal habitats, coastal resources, and coastal communities; (2) develop water resource forecasting capabilities to support effective Great Lakes water resource management; and (3) build institutional capacity to adapt to climate change at all levels of government.

Benefits/Outcomes

The key objectives accomplished through this initiative will improve our understanding of and ability to predict the impacts of climate change on coastal habitats, coastal resources, and coastal communities. NOS can deliver integrated climate change impact assessment methodologies and future climate and hydrologic scenarios, to help determine where critical resource management decisions will likely be most needed. Integrated environmental, ecological, and socioeconomic impact assessment models can provide business and government leaders the critical information needed for advanced planning and response to likely disruptions in coastal and Great Lakes watersheds and developed coastal communities.

Safe Maritime Navigation

Overview

Ninety-eight percent by weight of all U.S. commerce passes through the nation's ports and harbors aboard commercial vessels either as complete products, components of products, or chemicals and fuels to create products and operate other parts of the national domestic infrastructure. Maritime commerce alone contributes $14 billion annually in services to the U.S. economy, a figure that is expected to triple in the next generation. Half of this maritime commerce is hazardous materials which puts the nation's coastal waters and ports and harbors at risk hundreds of times daily. While the coastal zone is at risk on a daily basis, the Nation's population is moving toward the coast. In 2010 65% of the U.S. population is expected to inhabit the coastal zone — representing a doubling of coastal population in the next decade. In addition, an ever larger portion of the population visits the nation's coastal waters annually — attracted by the recreational opportunities that this environment offers. The increased activity focused in port and harbor areas and along the coastal zone increases stress on the environment, and the risk of vessel groundings and hazardous spills. The impact of such accidents is felt by everyone from the responsible party to the local tourism economy.

NOS proposes to continue the ongoing revolution in the provision of critical marine navigation services to Nation's maritime community. These services, which include the nation's nautical charting database and real-time oceanographic data will be dramatically improved by a significant change in their "temporal" nature. The currency of the national suite of nautical chart data will be continuously maintained with no changes older than a week and real time tide and current information will be combined with accurate short term predictions to give the mariner powerful tools to increase margins of safety and to assure timely transits to and from shore side facilities.

Why NOS?

The National Ocean Service has been in the marine navigation service business for 191 years providing the nation with it's suite of nautical charts, Coast Pilot volumes and ocean tide and current predictions. The tradition of service excellence has been enhanced by other NOS capabilities in recent years which include programs to respond to and assess damage from hazardous spills and to assist state and local governments in establishing strategies for managing their coastal marine resources. NOS will bring all of these capabilities to bear on making the nation's maritime commerce efficient, safe, and environmentally sound.

An Approach

The maritime community is poised to make major improvements in the efficiency and safety of maritime commerce while simultaneously protecting the coastal environment from the consequences of natural and accidental hazards. These improvements will be realized by applying new computer and communications technologies to the integration of NOS' suite of mapping, charting and geodetic data products.

Benefits/Outcomes

This NOS initiative strengthens the Nation's maritime economy while promoting the sustainable use of the coastal zone. Powerful new navigation tools can improve the efficiency of our ports and waterways, and safely maximize the capacity of the shoreside transportation infrastructure. Safer and more efficient maritime operations also can reduce threats to coastal resources from spills and other catastrophic events. The data components which build NOS' suite of integrated marine navigation services also have critical value outside their traditional navigation application. This initiative creates vastly improved information and analysis tools for coastal managers, those who respond to marine spills, and other stewards of the Nation's precious coastal resources.